

REMARKS

Claims 1, 2 and 4-9 are pending in the above-identified application. To expedite prosecution and clarify the present invention, Applicants hereby amend claim 1. Support for this amendment is found, for example, on page 5, line 27 to page 6, line 5 in the specification and Figs. 1B and 2B. In view of this amendment and the following remarks, Applicants respectfully request that the Examiner allow claims 1, 2 and 4-9.

The Examiner has failed to produce a *prima facie* case of obviousness, because the cited references, either alone or in combination, fail to set forth a method of manufacturing a semiconductor device comprising, in the recited order, the steps of... *heating the first metal to melt and coagulate the first metal*; supplying a second metal into the openings on the coagulated first metal; (and) heating the first metal and the second metal to melt and coagulate the first metal and the second metal. For instance, *Nishiguchi* fails to disclose the step of *heating the first metal to melt and coagulate the first metal* (wherein this step is performed before the step of “supplying a second metal into the opening on the coagulated first metal”). Although *Nishiguchi* discusses a eutectic reaction occurring at the boundary surface layers of the bump, such eutectic reactions only occur *after* the second layer is mounted on the first layer. Therefore, the reference does not disclose the step of heating the first metal to melt and coagulate the first metal.

Also, in the present invention, the first metal is heated and then coagulated, wherein the first metal has a characteristic in which a volume thereof is increased when it is heated to be molten and coagulated. [claim 1] Under such a characteristic, the diameter of the opening of the insulating layer is increased.

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Whereas, in *Nishiguchi*, Figs. 13 and 14, a metal layer 111 and a tin layer 121 are alternately formed in the opening of the photo-resist layer 106 by electroplating and then the photo-resist layer 106 is removed. *Nishiguchi* does not suggest that either the metal layer 111 or the tin layer 121 is molten during the process in which the metal layer 111 and the tin layer 121 are alternately formed.

Moreover, *Nakata* suggests that an alloy of Sn or Bi is used as a material of electrodes. However, *Nakata* does not suggest that the individual metals are mixed after they are laminated.

In view of the above remarks and amendment, Applicants respectfully submit that the cited references, either alone or in combination, fail to teach or suggest the features of claim 1. Accordingly, Applicants respectfully request that the Examiner withdraw the obviousness rejections and allow claims 1, 2, and 4-9.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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